

- 31 -

WHAT IS CLAIMED IS:

1. A method for the diagnosis of metabolic bone diseases in a patient, which comprises the step of determining the level of PTHrP in a biological sample of a patient wherein an alteration of PTHrP levels from that of a normal individual is indicative of metabolic bone diseases and/or metabolic bone diseases predisposition.
2. The method of claim 1, wherein said metabolic bone diseases is osteomalacia, osteoporosis, osteopetrosis or Paget's disease.
3. A method for the treatment of metabolic bone diseases, which comprises administering to a patient a compound for the modulation of PEX enzymatic activity modulates PTH and PTHrP levels that regulate osteoblast activity.
4. The method of claim 3, wherein said metabolic bone diseases is osteomalacia, osteoporosis, osteopetrosis or Paget's disease.
5. Use of a compound for the modulation of PEX enzymatic activity for the manufacture of a medicament for treating metabolic bone diseases, wherein said compound modulates PTH and PTHrP levels that regulate osteoblast activity.
6. The use of claim 5, wherein said metabolic bone diseases is osteomalacia, osteoporosis, osteopetrosis or Paget's disease.
7. A method for the treatment of metabolic bone diseases, which comprises modulating PTH and PTHrP levels that regulate osteoblast activity in a patient to modulate bone breakdown and bone formation.

- 32 -

8. The method of claim 8, wherein said metabolic bone diseases is osteomalacia, osteoporosis, osteopetrosis or Paget's disease.

9. Use of a compound for the modulation of PTH and PTHrP levels that regulate osteoblast activity for the treatment of metabolic bone diseases.

10. The use of claim 9, wherein said metabolic bone diseases is osteomalacia, osteoporosis, osteopetrosis or Paget's disease.

11. A non-human transgenic mammal to study the role of PEX in bone development and homeostasis, whose germ cells and somatic cells contain a PEX gene construct for expression of PEX in osteoblast consisting essentially of a recombinant PEX gene sequence under the control of a proximal promoter of a pro- $\alpha 1(I)$ collagen gene, the PEX gene construct being introduced into the mammal, or an ancestor of the mammal, at an embryonic stage.

12. The non-human mammal of claim 11, which is a mouse and the proximal promoter is murine pro- $\alpha 1(I)$ collagen gene.

13. The non-human mammal of claim 12, wherein said murine pro- $\alpha 1(I)$ collagen gene is a 2.3 kb fragment thereof.

SUB 8)
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